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Barbers Point, Hawaii

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BARBERS POINT NAVAL AIR STATION
BARBERS POINT, HAWAII

FEDERAL FACILITY
EXPANDED SITE INSPECTION REVIEW
SUMMARY REPORT

Prepared For

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
San Francisco, CA 94105

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Prepared by	:	PRC Environmental Management, Inc.
Project Manager	:	Ksenija Mikulicic
Telephone No.	:	415/543-4880
EPA Primary Contact	:	Carolyn Douglas
Telephone No.	:	415/744-2343

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FEDERAL FACILITY EXPANDED SITE INSPECTION REVIEW SUMMARY REPORT

DATE: July 15, 1992

SUBMITTED TO: Carolyn Douglas, Federal Facilities Coordinator
U.S. Environmental Protection Agency (EPA) Region 9

PREPARED BY: Catherine Courtney, PRC Environmental Management, Inc.
Honolulu, Hawaii

THROUGH: Ksenija Mikulicic, PRC Project Manager

FACILITY: Barbers Point Naval Air Station
Barbers Point, Hawaii

EPA ID NO.: HI1170024326 / CERCLIS
HI1170090004 / CERCLIS

EPA CONTRACT: 68-W9-0009

1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA), Region 9, under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA) has tasked PRC Environmental Management, Inc. (PRC) to conduct an expanded site investigation (ESI) review at Barbers Point Naval Air Station (BPNAS), Barbers Point, Hawaii.

Potential hazardous waste sites were identified at BPNAS and entered into the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) on December 14, 1989 (References 1, 2). Two CERCLIS Identification (ID) numbers are assigned to BPNAS. CERCLIS ID Number HI1170024326 is assigned to Coral Sea Road Coral Pit, Ordy Pond, and the Barbers Point Sanitary Landfill (Reference 1), and CERCLIS ID Number HI1170090004 is assigned to Barbers Point Navy Public Works Center (PWC), the owner and operator of the Barbers Point Sanitary Landfill (Reference 2).

Hazardous Waste Site Notification forms were submitted to EPA on May 26, 1981 for Coral Sea Road Coral Pit (Reference 3), on July 28, 1981 for Barbers Point Sanitary Landfill (Reference 4), and on June 10, 1982 for Ordy Pond (Reference 5). Four hazardous waste site investigations have been performed at BPNAS between 1982 and 1991. EPA, however, decided that further investigation of BPNAS would be necessary to more completely evaluate the site using EPA's Hazard Ranking System (HRS) criteria. The HRS assesses the relative threat associated with the actual or potential releases of hazardous substances from the site. The HRS is the primary method of determining a site's eligibility for placement on EPA's National Priorities List (NPL). The NPL identifies sites at which EPA may conduct remedial response actions. This Expanded Site Inspection Review is the result of PRC's evaluation of the submitted data.

1.1 APPARENT PROBLEMS

Coral Sea Road Coral Pit is contaminated with volatile organic compounds (VOC), semi-volatile organic compounds (SVOC), polychlorinated biphenyls (PCB), and inorganics as a result of past disposal activities (Reference 31). Since the 1940s, Coral Sea Road Coral Pit was used for the disposal of garbage, demolition rubble, and other solid wastes (Reference 6). Tanks located at the Coral Sea Road Coral Pit since the 1950s, have stored waste oils, solvents, paints, jet fuel, and possibly polychlorinated biphenyls (PCB). Frequently, waste oil was disposed of directly into Coral Sea Road Coral Pit instead of being pumped into tanks for storage. Approximately 700,000 gallons of non-biodegradable detergent used for washing aircraft was discharged annually into Coral Sea Road Coral Pit (Reference 6). Contaminant releases to Coral Sea Road Coral Pit are continuing under current operating procedures. The two primary disposal activities are the discharge of waste/wash/storm water runoff from the aircraft wash area and past releases associated with the waste oil/solvent storage in the three bulk storage tanks located at the southeast wall of the pit. A site sketch of Coral Sea Road Coral Pit is shown in Figure 1.

For approximately 10 years, from 1970 to 1980, on-station ordnance personnel disposed of ordnance-related scrap material in Ordy Pond, a perennial surface-water body (Reference 6). More recently, old agitene drums, pallets, manuals, and packing materials have been disposed of in the pond (Reference 6). Cadmium, cobalt, and nickel were detected in surface-water samples, and silver, plus pesticides, DDE, DDD, and DDT of the dichlorodiphenyl family were detected in sediment samples from Ordy Pond (References 9, 10, 11, 12, 13). Ordy Pond sketch shown in Figure 2.

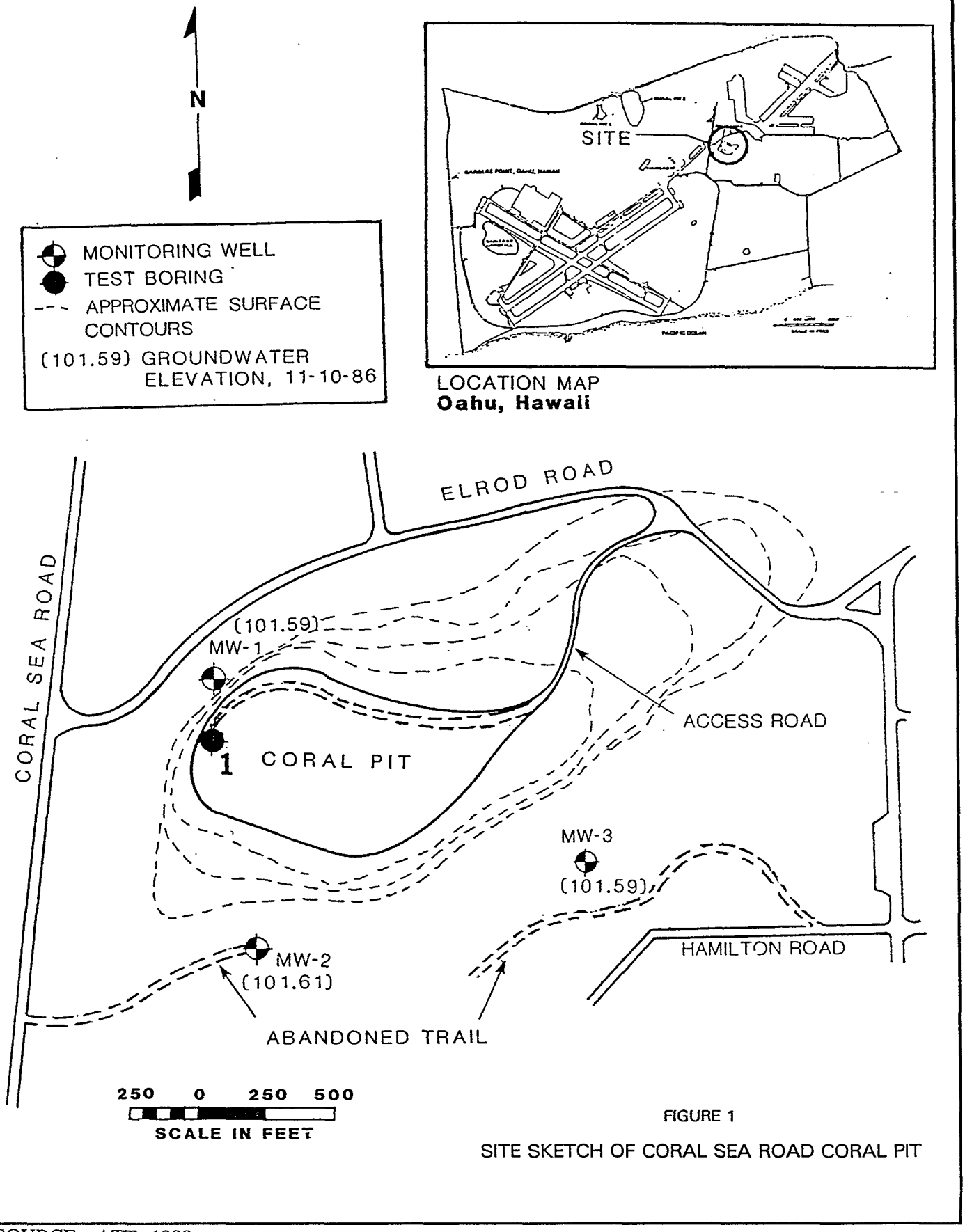

FIGURE 1

SITE SKETCH OF CORAL SEA ROAD CORAL PIT

SOURCE: ATT, 1988

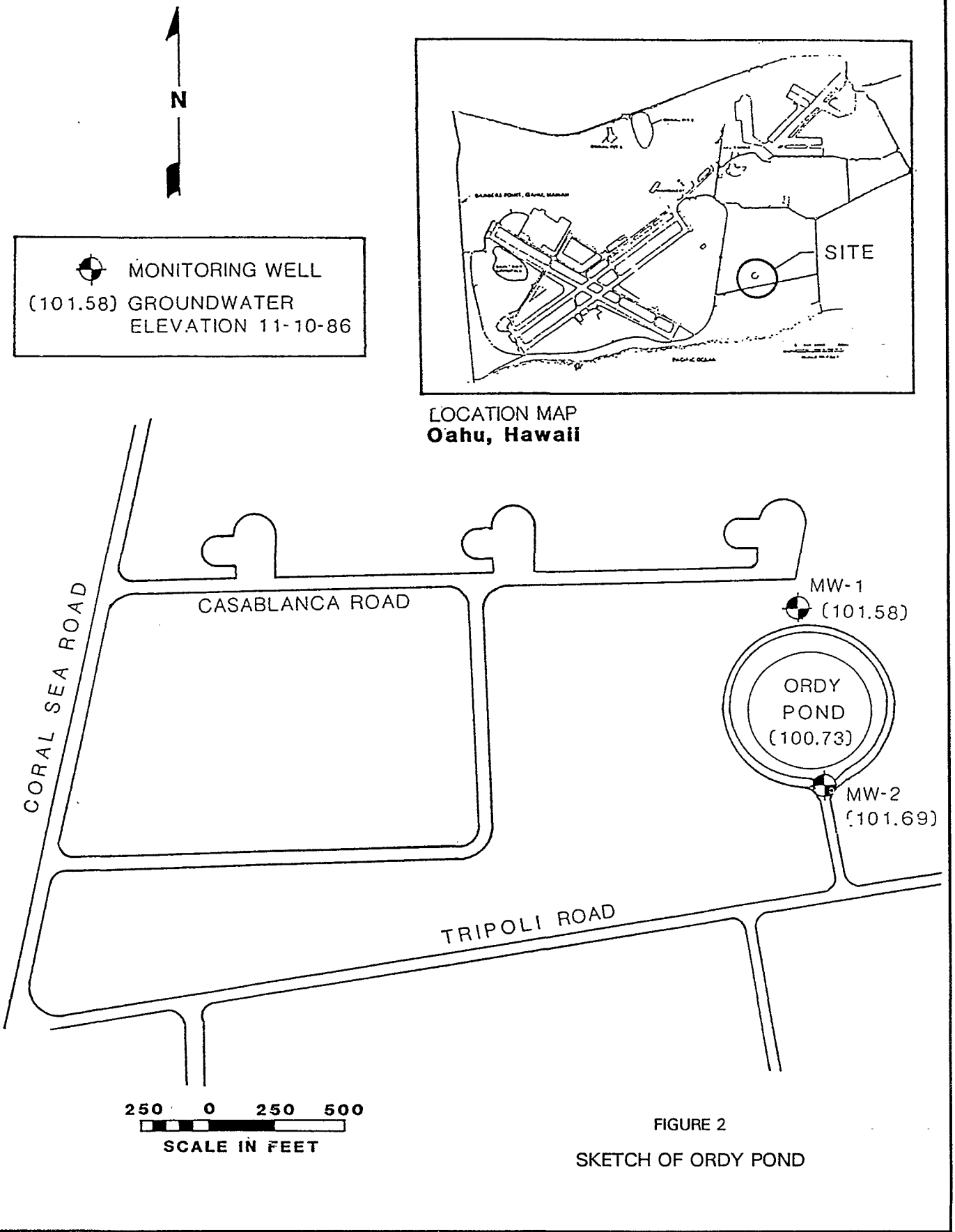

FIGURE 2

SKETCH OF ORDY POND

SOURCE: ATT, 1988

Barbers Point Sanitary Landfill reportedly received 4,000 tons of refuse annually from 1943 to 1976 (Reference 6). The refuse was burned and the remaining residues were covered with coral extracted from an adjoining pit. Barbers Point Sanitary Landfill was reported to have received used pesticide containers, pesticide rinsewater, and rags contaminated with solvents and oils. The disposal site was converted to a sanitary landfill in 1976 (Reference 6). A portion of the sanitary landfill was used for asbestos disposal until 1991. Currently, the site is used as a drying bed and landfill for sewage sludge from Pearl Harbor Sewage Treatment Plant (Reference 7). A site sketch of Barbers Point Sanitary Landfill is shown on Figure 3.

2.0 SITE BACKGROUND

2.1 LOCATION

BPNAS is located in Barbers Point, Hawaii, at 21°19'00" N latitude and 158°04'30" W longitude, on property owned by the U.S. Navy. Figure 4 shows the regional location of the facility. BPNAS is bounded on the north by the Waianae Mountain Range and on the south by the Pacific Ocean. The eastern side of BPNAS is bounded by sugar cane fields that lie between the Naval Air Station and Pearl Harbor.

2.2 FACILITY DESCRIPTION

BPNAS is located 13.5 miles due west of Honolulu, on the southern Coastal Plain of the island of Oahu in the state of Hawaii and covers an area of approximately 3,700 acres (Reference 6). This installation has a population of 2,210 residents and 3,527 nonresident workers (Reference 7). Excluding station residents and workers, the surrounding community within 4 miles of BPNAS has a population of approximately 30,000. The area surrounding BPNAS is comprised of a combination of industrial, agricultural, and residential-use land. The predominant economic activities in the region are sugar cane cultivation, manufacturing, and oil refining. Adjacent to BPNAS's western boundary is Campbell Industrial Park. Operations at the park include petroleum refining, manufacturing, and light industry. The neighborhood immediately north of BPNAS is Makakilo City. The nearest public recreational areas are Barbers Point Beach Park and Oneula Beach Park, 1 mile to the west and 1 mile to the east of BPNAS,respectively.

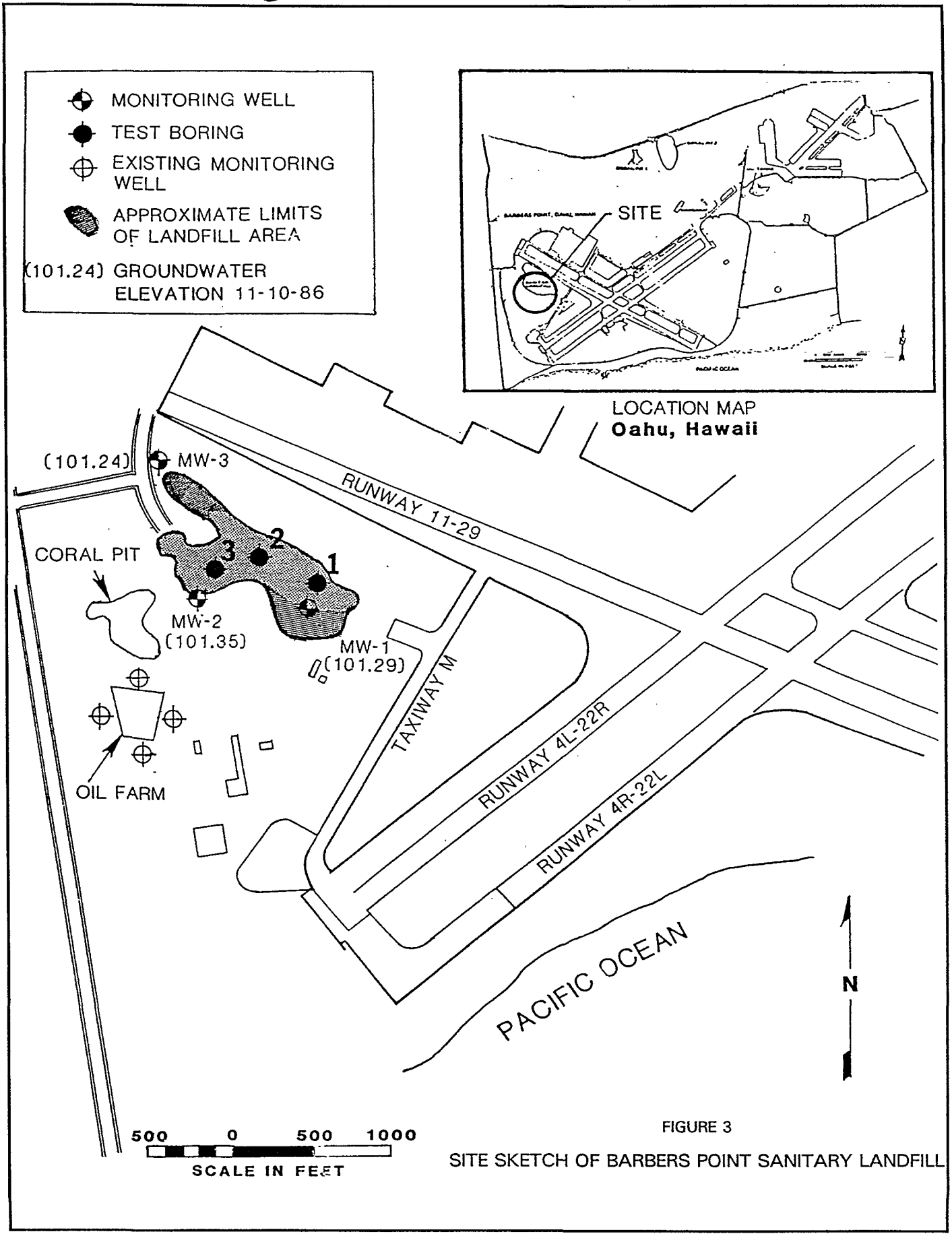

FIGURE 3

SITE SKETCH OF BARBERS POINT SANITARY LANDFILL

SOURCE: ATT, 1988

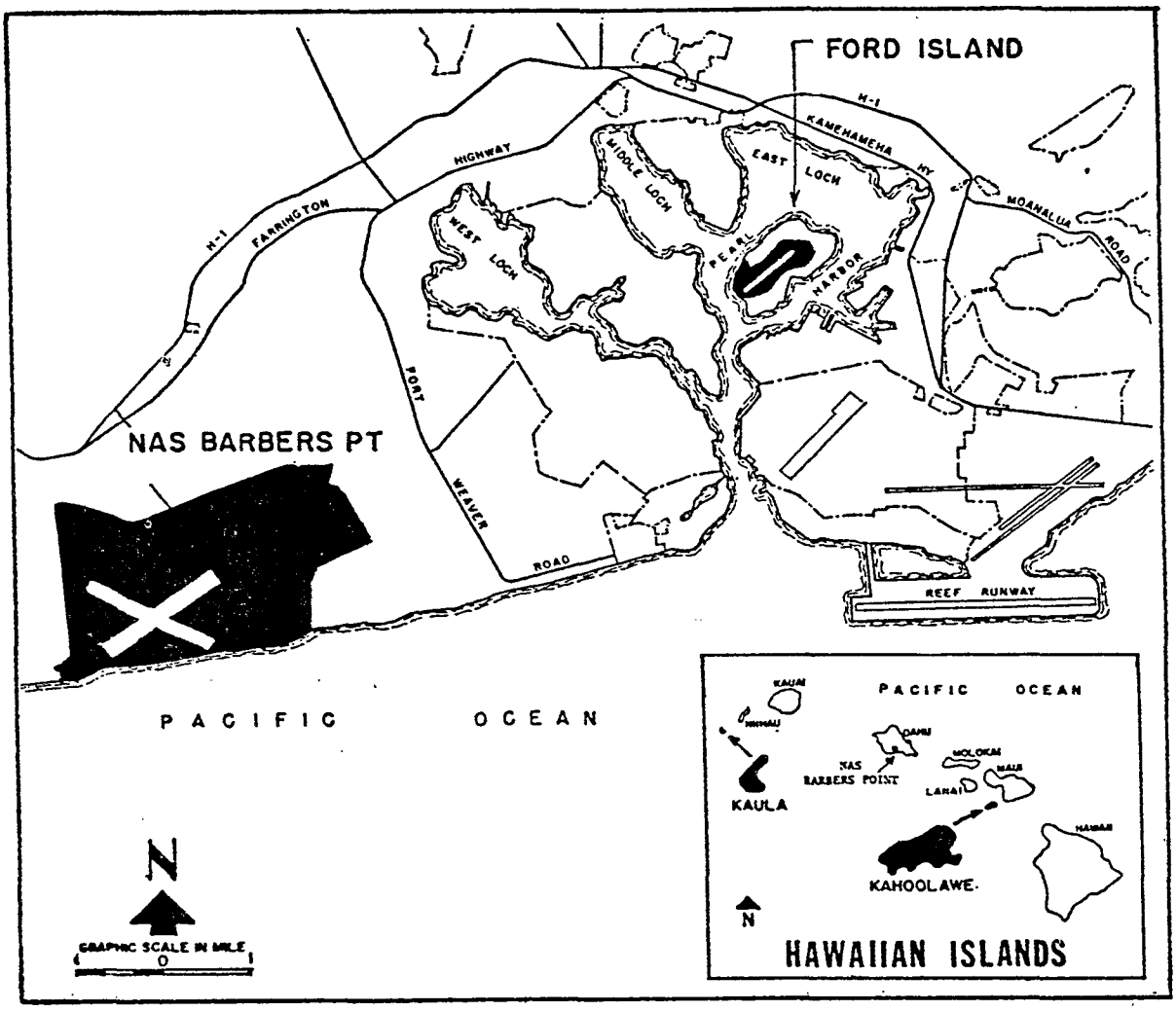

FIGURE 4

VICINITY MAP

SOURCE: NEESA, 1983

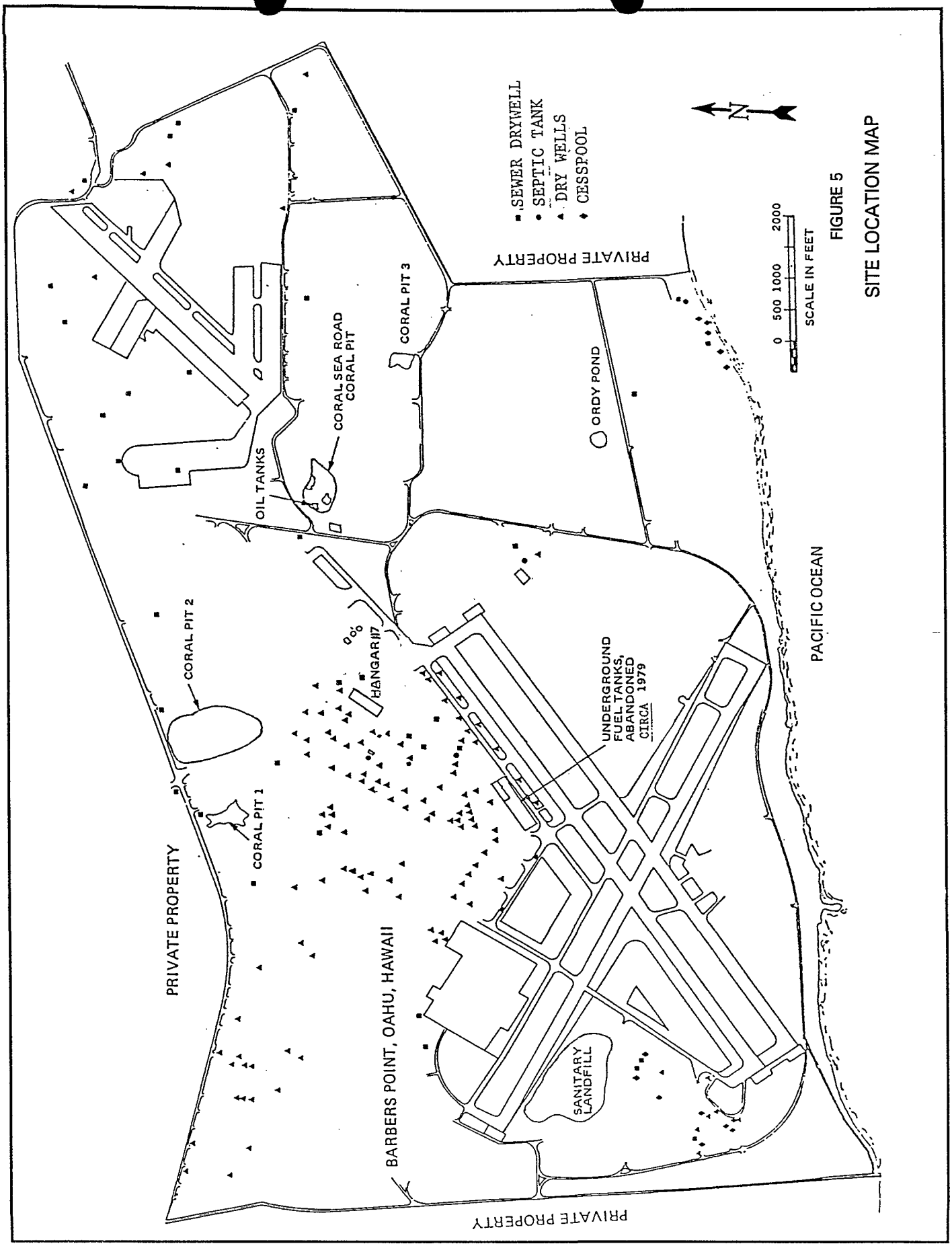

FIGURE 5

SITE LOCATION MAP

SOURCE: NEESA, 1983

The Barbers Point Naval Air Station facility is depicted in Figure 5 with the location of each of the following sites identified.

Coral Sea Road Coral Pit is an elongated depression approximately 9.2 acres in size (Figure 1). The Coral Sea Road Coral Pit is encircled by an access road.

Ordy Pond is a 300-foot diameter pond situated in the southeastern portion of BPNAS (Figure 2). The pond is surrounded by dense vegetation.

Barbers Point Sanitary Landfill is an irregularly shaped depression approximately 12.7 acres in size (Figure 3).

2.3 OPERATIONAL HISTORY

BPNAS was built in 1943 and is currently owned and operated by the Navy. The primary mission of BPNAS has been to maintain and operate aircraft maintenance facilities and to provide services and material support operations for aviation activity and for units of the Navy's operating forces as well as other activities, as designated by the Navy (References 2, 6). BPNAS is and has been home to a variety of U.S. Navy (Navy), U.S. Army (Army), and U.S. Coast Guard (Coast Guard) commands. Major commands include the Aircraft Intermediate Maintenance Department (AIMD), several Navy squadrons, an Army helicopter squadron, the Coast Guard air station, and PWC Pearl Harbor. The facility is the homeport for six deploying patrol squadrons and provides facilities for a carrier air wing when an aircraft carrier is in Hawaiian waters.

Most industrial operations at BPNAS are related to aircraft maintenance (Reference 7). Spent oils, lubricating fluids, fuels, paint, and solvents comprise the bulk of the industrial wastes generated on the station. A variety of aircraft maintenance and repair functions are performed at BPNAS, including major repair work. Solvents are widely used for cleaning engine parts and aircraft equipment. Engine lubricating oils and hydraulic fluids are drained from aircraft during servicing. Paints and paint strippers are also used for propeller painting and for paint removal.

Since the 1940s, the Coral Sea Road Coral Pit was used for the disposal of garbage, demolition rubble, and other solid wastes. In addition, tanks located at the Coral Sea Road Coral Pit, since the 1950s, stored waste oils, solvents, paints, jet fuel, and possibly PCB (Reference 6).

Ordy Pond was used for the disposal of ordnance-related scrap material for approximately 10 years between 1970 and 1980. More recently, old agitene drums, pallets, manuals, and packing materials have been disposed of in the pond from the Pearl Harbor Sewage Treatment Plant (Reference 6).

Barbers Point Sanitary Landfill was used to burn refuse between 1943 and 1976. In 1976, the site was converted to a sanitary landfill. Asbestos was disposed of at the landfill until 1991. The site is currently used to dry and landfill sewage sludge (References 6, 7).

2.4 REGULATORY INVOLVEMENT

BPNAS is tracked by CERCLIS under EPA ID No. HI1170024326 and Barbers Point PWC is tracked under CERCLIS by EPA ID No. HI1170090004. In the past, BPNAS discharged effluent to the Pacific Ocean under National Pollutant Discharge Elimination System (NPDES) Permit No. HI0110043 (Reference 6). The facility no longer has a point source discharge because it is connected to a municipal sewage treatment system (Reference 7). Barbers Point Sanitary Landfill is operated under state of Hawaii Solid Waste Permit No. SW-233240 (Reference 8). The sanitary landfill is permitted for asbestos disposal, bioremediation of oily waste in a land farm, and used as a drying bed for sewage sludge collected from the Navy's sewage collection system.

3.0 INVESTIGATIVE EFFORTS

A review of EPA's file material for BPNAS has revealed four previous hazardous waste investigations at BPNAS. Since, the fourth hazardous waste investigation at BPNAS was recently completed for the Navy, PRC was only able to review the draft final report (Reference 31). Telephone conversations with Navy, U.S. Fish and Wildlife, National Marine Fisheries Service, and Hawaii State Department of Land and Natural Resources personnel were conducted by PRC to gather additional information for the EPA who had no file information.

3.1 PREVIOUS SAMPLING

Four previous sampling efforts were conducted at Coral Sea Road Coral Pit, Ordy Pond, and Barbers Point Sanitary Landfill. A site inspection was conducted by the EPA Field Investigation Team (FIT) between April 1 and 8, 1982 (References 9, 10, 11, 12, 13). An initial assessment study of BPNAS was completed in June 1983 by Naval Energy and Environmental Support Activity (NEESA) (Reference 6). A confirmatory study of Coral Sea Road Coral Pit, Ordy Pond, and Barbers Point Sanitary Landfill was performed by Aqua Terra Technologies, Inc. (ATT) in 1988 (Reference 14). An expanded site inspection of Coral Sea Road Coral Pit was conducted by Argonne National Laboratory (ANL) in 1990 (References 15, 16). A draft final report was prepared by ANL (Reference 31). A brief summary of the draft final report (Reference 31) was prepared by the Navy (Reference 15).

3.2 SAMPLING

3.2.1 Purpose and Description of Sampling Events

The EPA Field Investigations of Uncontrolled Hazardous Waste Sites (FIT) sampling event was designed to provide information regarding the potential presence of hazardous waste, the nature of these wastes, and the possibility that this waste, if present, had migrated off-site (References 9, 10, 11, 12, 13). One surface-water sample and one sediment sample were collected from Coral Sea Road Coral Pit and from Ordy Pond for organic and inorganic analyses. A sample of sand blasting material was collected from Barbers Point Sanitary Landfill. No background samples were collected during this investigation.

The purpose of the initial site assessment prepared by NEESA was to identify and assess sites posing a potential threat to human health or to the environment due to contamination from past hazardous materials operations. Historical records, aerial photographs, field inspections, and personnel interviews formed the basis of the initial assessment study (Reference 6).

The confirmatory study performed by ATT was designed to determine whether toxic or hazardous substances had contaminated the soil and ground water at Coral Sea Road Coral Pit, Ordy Pond, and Barbers Point Sanitary Landfill (Reference 14). Surface and subsurface soil and ground

water samples were collected at each site. No background samples were collected during this investigation.

The expanded site investigation of Coral Sea Road Coral Pit conducted by ANL was to determine if contamination identified by previous investigations actually exists, if confirmable contamination poses a threat to the environment, and if any further remedial action would be necessary. The final sampling and analysis plan prepared by ANL for the expanded site investigation indicated that background samples would be taken during the expanded site investigation (Reference 17). The draft final report prepared by ANL for the expanded site investigation indicated that 120 soil and water samples were collected and analyzed from Coral Sea Road Coral Pit (Reference 31).

3.2.2 Discussion of Sample Results

The EPA FIT investigation found no detectable levels of any organic compounds other than di-n-butylphthalate (5,900 parts per billion (ppb)) and no high levels of inorganic compounds in the surface-water sample from Coral Sea Road Coral Pit (Reference 11). The sediment sample Coral Sea Road Coral Pit contained small amounts of a number of phthalate esters and polynuclear aromatic hydrocarbons. Of the inorganic compounds, only lead was detected at high (100 parts per million (ppm)) concentrations in the sediment sample. EPA FIT concluded that migration of contaminants from the site was likely to be horizontal, shallow, and seaward. Migration vertically below the coral reefs was determined to be unlikely because of the low permeability of the caprock sediments and because no potable ground water resources appeared to be affected (Reference 11).

The EPA FIT investigation identified no priority pollutant organic or inorganic compounds in the surface-water sample collected from Ordy Pond (Reference 12). The sediment sample from this site contained DDD, DDE, and DDT (170 ppb). Of the inorganic compounds, only lead was detected at high (110 ppm) concentrations in the sediment sample. EPA FIT concluded that migration of contaminants from the site was likely to be horizontal, shallow, and seaward. Migration vertically below the coral reefs was determine to be unlikely due to the low permeability of the caprock sediments.

The EPA FIT investigation found the sandblasting grit at Barbers Point Sanitary Landfill to be non-toxic when subjected to Extraction Procedure (EP) Toxicity tests (Reference 13). The migration potential of contaminants was considered to be the same as at the previous two sites.

The initial assessment study conducted by NEESA identified nine potentially contaminated sites at BPNAS (Reference 6). The study concluded that three of the sites warranted further investigation. Confirmation studies were recommended for Coral Sea Road Coral Pit, Ordy Pond, and Barbers Point Sanitary Landfill.

The confirmatory study performed by ATT identified elevated levels of petroleum hydrocarbons in ground water, surface water, and soil samples from Coral Sea Road Coral Pit (Reference 14); however, no analyses of background samples were conducted. Elevated lead levels were observed in the soil sample collected at Coral Sea Road Coral Pit. Trace levels of volatile organic compounds, including ethyl acetate, unknown hydrocarbons, and methylene chloride, were observed in ground water and pond water samples collected by ATT at Ordy Pond.

Volatile and semivolatile compounds, including ethyl acetate and unknown hydrocarbons, were present in ground water samples collected during the confirmatory study performed by ATT at Barbers Point Sanitary Landfill (Reference 14). Only trace concentrations of certain metals were detected in the groundwater samples collected. Elevated levels of petroleum hydrocarbon compounds were observed in one soil sample. Slightly elevated zinc, chromium, and copper were also observed in the same soil sample.

The expanded site investigation performed by ANL indicated that Coral Sea Road Coral Pit is contaminated with volatile organic compounds (VOC), semi-volatile organic compounds (SVOC) polychlorinated biphenyls (PCB), and inorganics as a result of past and ongoing waste disposal practices. Sampling efforts within the Coral Sea Road Coral Pit were focused in the area where aircraft wastewater discharge area and the area of the three bulk storage tanks. Substantial VOC contamination was present in subsurface soils adjacent to and downgradient of the three bulk storage tanks. SVOC contamination by naphthalene and 2-methylnaphthalene was highest in samples collected at the three bulk storage tanks. The highest metal concentrations were present in samples collected at the airfield wastewater discharge, but metal concentrations were also significantly

elevated at the bulk storage tanks. The highest PCB concentrations were found at the bulk storage tanks, but PCB contamination was also present at the waste water discharge. These contaminants were evident in the samples collected in the low area downgradient of both these disposal activities, indicating surface migration of contaminants from the bulk storage tanks and the waste water discharge area.

HAZARD RANKING SYSTEM FACTORS

4.1 SOURCES OF CONTAMINATION

Since the 1940s, Coral Sea Road Coral Pit was used for the disposal of garbage, demolition rubble, and other solid wastes (Reference 6). Tanks located in the Coral Sea Road Coral Pit since the 1950s stored waste oils, solvents, paints, jet fuel, and possibly PCB. Frequently, waste oil was disposed of directly into Coral Sea Road Coral Pit instead of being pumped into the tanks for storage. Approximately 700,000 gallons of nonbiodegradable detergent used for washing aircraft was discharged annually into Coral Sea Road Coral Pit (Reference 6). The site continues to receive rinse-rack washwater from a nearby Navy aircraft hangar. The total volume of waste oil, solvents, fuel, and other liquid wastes disposed of in the pit was estimated by the Navy to be 1,000,000 gallons (Reference 3).

For approximately 10 years, from 1970 to 1980, on-station ordnance personnel disposed of ordnance-related scrap material in Ordy Pond (Reference 6). More recently, old agitene drums, pallets, manuals, and packing materials have been disposed of in the pond. The total volume of wastes disposed of at Ordy Pond could not be determined. The total waste quantity was estimated as the area of the pond, 1.6 acres, based on a pond diameter of 300 feet (Reference 4).

Barbers Point Sanitary Landfill reportedly received 4,000 tons of refuse annually from 1943 to 1976 (Reference 6). The refuse was burned and the remaining residues were covered with coral extracted from an adjoining pit. The site also was reported to have received used pesticide containers, pesticide rinsewater, and rags contaminated with solvents and oils. The disposal site was converted to a sanitary landfill in 1976 and served as an asbestos disposal site until 1991. Currently, the sanitary landfill is used as a drying bed and disposal site for sewage sludge (References 7, 8).

The total volume of waste material and other liquid wastes disposed of in the landfill was estimated by the Navy to be 462,962 cubic yards (Reference 5).

4.2 GROUNDWATER PATHWAY

4.2.1 Hydrogeologic Setting

BPNAS is located on the Ewa Coastal Plain which is primarily composed of late Pleistocene consolidated calcareous marine deposits such as reef limestones and detrital beach sediments, and some Quaternary unconsolidated marine calcareous sediments that occur near the shoreline. The subcropping reef limestone can be classified as active karst terrain. These sediments are interstratified with terrestrial sediments to form a relatively impermeable caprock overlying the more permeable basaltic bedrock (Reference 14). The elevation of the top of the caprock near BPNAS ranges from 400 to 1,000 feet below ground surface (bgs).

The hydrogeology of the Ewa Coastal Plain can be evaluated on both a regional and a local scale (Reference 18). On a regional scale, the original depositional features of the reef are dominant. The regional hydraulic gradient is very low, on the order of 0.0001, and hydraulic conductivity is high, on the order of 3.5 to 8.8 centimeters per second (cm/s). Regional effective porosity is approximately 0.25 to 0.35. On a local scale solution and recrystallization processes alter the character of the formation. Numerous sink holes and dissolution voids are located in the vicinity of BPNAS. Locally, hydraulic conductivity may be 0.001 cm/s. Groundwater velocity is 10 to 20 feet per day and the direction of groundwater flow is toward the nearest coast.

The shallow aquifer at BPNAS is brackish (References 6, 14) and no potable water is drawn from this aquifer. Depths to groundwater range from the surface at the coast to roughly 60 feet bgs. The shallow aquifer is in direct hydraulic connection with the ocean and is composed of layers of permeable coral limestones separated by less permeable layers of terrestrial sediments. This interbedding of less permeable materials inhibits vertical migration within the shallow aquifer to the underlying basal aquifer.

The Waianae and Koolau Ranges, forming the core of the island of Oahu, are composed of basaltic rock. The relatively permeable basalt serves as the primary basal aquifer in the area and as the source of drinking water. The primary source of ground water recharge to this basal aquifer is rainfall in the Waianae range (Reference 17). BPNAS obtains unblended potable water from a 154-foot deep well, located at the base of the Waianae range, about 2 miles north of the facility (References 19, 20). BPNAS lies outside of the underground injection control line (UIC) marking the area where UIC wells used for waste disposal are prohibited (Reference 21). There are no wellhead protection areas designated to date in the state of Hawaii (Reference 22).

4.2.2 Groundwater Targets

Numerous wells are located within a 4-mile radius of BPNAS and consist of municipal and privately-owned drinking water wells, in addition to privately-owned irrigation and injection wells (References 21, 22, 23). Two drinking water wells located within a 4-mile radius of BPNAS draw potable water from the deep, confined, drinking-water aquifer. These two wells are evaluated for potential contamination, although located upgradient from the sites at BPNAS and are not likely to be influenced by contaminants at Coral Sea Road Coral Pit, Ordy Pond, and Barbers Point Sanitary Landfill.

A shallow, unconfined, nonpotable aquifer that is hydraulically connected to the ocean lies directly beneath BPNAS. This aquifer yields brackish water in large quantities, which is used for sugar cane irrigation. Ground water samples taken from this aquifer indicated no detectable levels of contaminants. The relatively impermeable caprock situated 400 to 1,000 feet bgs overlies the deeper basal aquifer and provides a barrier to vertical migration of contaminants.

4.2.3 Groundwater Pathway Conclusion

The potential release of contaminants to the shallow unconfined aquifer was suggested by ground water analyses at Coral Sea Road Coral Pit, Ordy Pond, and Barbers Point Sanitary Landfill (Reference 14); however, the ESI conducted at the Coral Sea Road Coral Pit did not indicate a release to this aquifer. The migration potential of contaminants from sites at BPNAS towards potable

water sources is inhibited because ground water discharge from this aquifer is towards the ocean, and the salinity of the unconfined aquifer precludes its use as a source of drinking water. Also, the ~~The~~ potential release of contaminants to the deep, confined, drinking water aquifer is unlikely because of the impermeable caprock layer that separates the shallow and deep aquifers.

4.3 SURFACE-WATER PATHWAY

4.3.1 Hydrologic Setting

BPNAS lies within the rainshadow of the Koolau and Wainae ranges. The average precipitation at BPNAS is 21 inches per year (Reference 6). The 2-year 24-hour rainfall is 5 inches (Reference 22). Coastal areas of BPNAS are located in a 100-year floodplain (Reference 23).

BPNAS is located on the gently sloping coastal plain and is not crossed by any drainageways. Streams do no enter or exit BPNAS, and Ordy Pond is the only perennial water body (Reference 6). The water level in the pond appears to be near sea level. The pond and shallow unconfined aquifer are hydraulically connected to the Pacific Ocean. The only large body of water near the facility is the Pacific Ocean, which borders the southern extent of BPNAS.

Surface water run-off upgradient of BPNAS is controlled by irrigation ditches and stormwater drains. The stormwater drain system at BPNAS consists of numerous dry wells located throughout the facility (Reference 7).

4.3.2 Surface-Water Targets

Documented past uncontrolled waste disposal practices and limited surface water and sediment sampling in the pond suggests a surface-water release to Ordy Pond. In addition, Ordy Pond is located 0.8 miles downgradient of/and in the surface-water migration watershed of Coral Sea Road Coral Pit.

There are no drinking-water intakes located downstream of BPNAS (Reference 24). Drinking-water is not drawn from the Pacific Ocean and drinking water reservoirs used for blending groundwater from various drinking water wells throughout the island are greater than 15 miles upgradient from BPNAS. No primary or secondary populations were identified.

Primary fisheries were not identified within 15 miles of BPNAS. Ordy Pond was used in the past as a recreational fishing area and was stocked with fish (Reference 7). No recreational fishing has occurred at Ordy Pond, thus, Ordy Pond was not considered a fishery. Commercial and recreational fishing occurs in the Pacific Ocean (Reference 25); however, there is no evidence that these fisheries have been contaminated by hazardous substances from BPNAS.

Ordy Pond was identified as a sensitive environment. Historic accounts made by state of Hawaii biologists suggest that the endangered Hawaiian Coot was observed at Ordy Pond (Reference 26). This species has not been observed at the pond for the last 6 years. In addition, Ordy Pond contains mangroves and other vegetation that are typical of wetland environments (References 7, 28).

Pearl Harbor National Wildlife Refuge is located approximately 3.9 miles from the Coral Sea Road Coral Pit and is managed specifically for the reproduction of endangered Hawaiian birds. Approximately, 1,200 Hawaiian Coots, 100 Hawaiian Common Moorehens, 1,300 Hawaiian Stilts, and 300 Hawaiian Ducks, all endangered species, live and breed in the refuge (Reference 27).

The Pacific Ocean borders the southern boundary of BPNAS. Endangered Hawaiian Monk Seals has been reported hauled out and pupping on beaches within 15 miles of BPNAS. Endangered Humpback Whales are observed, seasonally, in the waters offshore of BPNAS. Endangered Green Sea Turtles forage for marine algae in the shallow coastal waters of BPNAS (Reference 25).

4.3.3 Surface-Water Pathway Conclusion

The low rainfall, lack of drainageways, and overall flat topography of BPNAS suggest that surface-water migration of contaminants from the sources to the Pacific Ocean is unlikely. A surface-water release is observed only for Ordy Pond based on historical records of waste disposal practices and limited surface water and sediment sampling. Ordy Pond is considered a primary sensitive environment because of the presence of wetland vegetation (Reference 28).

4.4 SOIL EXPOSURE AND AIR PATHWAY

4.4.1 Physical Conditions

Access to BPNAS is restricted to military personnel and civilian workers (Reference 7). Access to Coral Sea Road Coral Pit and Barbers Point Sanitary Landfill is restricted by fencing and gates blocking road access. Access to Ordy Pond is restricted by dense vegetation. Coral Sea Road Coral Pit, Ordy Pond, and Barbers Point Sanitary Landfill are considered off-limits to BPNAS personnel.

4.4.2 Soil and Air Targets

There are no residences, schools, or daycare facilities within 200 feet from Coral Sea Road Coral Pit, Ordy Pond, or Barbers Point Sanitary Landfill (Reference 7). Barbers Point School is located on base, approximately 1 mile from the Barbers Point Sanitary Landfill. The residential population of BPNAS is 2,110 (Reference 7). There are also approximately 3,527 civilian workers at BPNAS. Periodically, workers have authorized access to Coral Sea Road Coral Pit for disposal of waste oil to storage tanks and to Barbers Point Sanitary Landfill for disposal of sewage sludge. Residents and workers at BPNAS and off-base residential populations are considered soil and air targets (References 7, 29).

Soil target populations surrounding the former disposal areas are as follows:

Distance to Sources	Population	
On-site	0	
0 to 1/4 mile	0	
1/4 to 1/2 mile	0	
1/2 to 1 mile	5,637	(BPNAS workers, residents)

Air target populations ~~surrounding~~ considered as an air target surrounding the former disposal areas are as follows:

Distance to Sources	Population	
On-site	0	
0 to 1/4 mile	0	
1/4 to 1/2 mile	0	
1/2 to 1 mile	8,584	(BPNAS workers, residents and civilians)
1 to 2 miles	2,947	
2 to 3 miles	6,070	
3 to 4 miles	27,059	

Endangered plant species growing on BPNAS are identified as terrestrial sensitive environments. Two endangered species of plants, *Acaranthes splendens* var. *rotundata* and *Chamaesyce skottsbergii* var. *skottsbergii* have been recorded on BPNAS (References 26, 27, 30). These plants species are located within 0.5 mile of Coral Sea Road Coral Pit and Ordy Pond.

4.4.3 Soil Exposure and Air Pathway Conclusions

Soil samples at Coral Sea Road Coral Pit contained petroleum hydrocarbons, lead and PCB (References 14, 15). Coral Sea Road Coral Pit is greater than 200 feet from any residence, school, or daycare center. Access to the site is restricted by dense vegetation and gates that restrict road access. The site is actively used for disposal of rinsewater from a nearby aircraft hangar. Endangered species of plants are located on BPNAS.

To date, no air sampling has been performed at Coral Sea Road Coral Pit, Ordy Pond, or Barbers Point Sanitary Landfill. During a recent site visit, no strong odors were detected at any of the three sites (Reference 7). Limited organic vapor photoionization measurements of borehole samples indicated volatiles present in soils sampled below ground surface (Reference 31). Volatile constituents may be present in petroleum hydrocarbons and other wastes deposited at Coral Sea Road Coral Pit; however, there is no reasonable basis for a suspected release.

5.0 EMERGENCY RESPONSE CONSIDERATIONS

The National Contingency Plan [40 CFR 300.415 (b) (2)] authorizes the EPA to consider emergency response actions at those sites which pose an imminent threat to human health or the environment. For the following reasons, a referral to EPA's Region 9 Emergency Response Section does not appear to be necessary:

- Access to all sites is restricted.
- Resident and worker populations are located at distances greater than 1/2 mile from sites.
- Drinking water wells are located upgradient from all sites in the confined, deep basal aquifer which is separated geologically from the shallow non-potable aquifer by a relatively impermeable caprock layer.

6.0 CURRENT CONDITION OF THE SITE

Coral Sea Road Coral Pit is largely overgrown with vegetation (Reference 7). Aircraft washracks continue to drain rinsewater into the area resulting in ponding. Sludge from the waste oil storage tanks located in the pit was removed in October 1991, and the tanks were cleaned for the first time in the history of use of these tanks. The roadways leading to Coral Sea Road Coral Pit are fenced and gates were present.

Ordy Pond is largely overgrown with vegetation and access to the site is restricted by dense kiawe brush (Reference 7). The pondwater is brown and contains aquatic life. Dense mangroves grow around the perimeter of the pond further inhibiting access to the pond.

Barbers Point Sanitary Landfill is currently used for drying sludge from the Pearl Harbor sewage treatment plant (Reference 7). The area of the landfill used for asbestos disposal was marked and covered with soil. Access to the landfill is restricted by a fence and a locked gate.

The Navy is planning to perform a remedial investigation/feasibility study (RI/FS) at Coral Sea Road Coral Pit. Implementation of the RI field work is scheduled for June 1992. A community relations plan is concurrently being developed with the RI work plans and will be completed by the last quarter of fiscal year 1992 (Reference 15).

7.0 SUMMARY

Barbers Point Naval Air Station (BPNAS) is located 13.5 miles due west of Honolulu, on the island of Oahu in the state of Hawaii. The facility has been owned and operated by the U.S. Navy since 1943. It covers an area of approximately 3,700 acres. The facility supports 2,110 residents and 3,527 workers. Most industrial operations at the facility are related to aircraft maintenance. Spent oils, lubricating fluids, fuels, paint, and solvents comprise the bulk of industrial wastes generated by the facility.

The primary disposal areas of concern are two surface impoundments, Coral Sea Road Coral Pit and Ordy Pond, used for uncontrolled waste disposal, and Barbers Point Sanitary Landfill. Four previous investigations of these sites have taken place: (1) a site inspection and limited sampling of surface water and sediments at Coral Sea Road Coral Pit and Ordy Pond conducted by the U.S. Environmental Protection Agency's Field Investigation Team in 1982, (2) an initial assessment study of Barbers Point Naval Air Station based on historical records and personnel interviews conducted by the Naval Energy and Environmental Support Activity in 1983, (3) a confirmation study resulting in the collection and analysis of limited soil, surface water, and groundwater samples from Coral Sea Road Coral Pit, Ordy Pond, and Barbers Point Landfill conducted by Aqua Terra Technologies, Inc. in 1988, and (4) an expanded site investigation conducted at Coral Sea Road Coral Pit by Argonne National Laboratory in 1990.

The pertinent Hazard Ranking System factors for Barbers Point Naval Air Station are:

- Two drinking water wells are located within four miles of the site.
- Ground water in the shallow, unconfined, aquifer is brackish and nonpotable and hydraulically connected to the Pacific Ocean.
- Access to all sites is restricted by dense vegetation, fences, and gates.
- Resident and worker populations are located at distances greater than 1/2 mile from sources.
- Ordy Pond is a perennial surface-water body and contains wetland vegetation.
- Surface water does not serve as a drinking water source.

8.0 EPA RECOMMENDATION

	Initial	Date
Site Evaluation Accomplished (SEA)	yd	10/9/92
High Priority for Further Site Assessment		
Low Priority for Further Site Assessment		
Defer to Other Authority (e.g., RCRA, TSCA)		

Notes:

APPENDIX A

REFERENCE LIST

APPENDIX A
REFERENCE LIST

1. Barbers Point, Naval Air Station, 1986, M-2 Maintenance Form.

2. Barbers Point, Public Works Center, 1992, Site Incident Form.

3. U.S. EPA Hazardous Waste Site Notification Form, 1981, Coral Sea Road Coral Pit.

4. U.S. EPA Hazardous Waste Site Notification Form, 1982, Barbers Point Landfill.

5. U.S. EPA Hazardous Waste Site Notification Form, 1981, Ordy Pond.

6. Naval Energy and Environmental Support Activity, 1983, Initial Assessment Study of Naval Air Station Barbers Point, Hawaii. NEESA 13-048.

7. Barbers Point Naval Air Station, 1992, Personal Communication from Stan Kato to Catherine Courtney of PRC Environmental Management, Inc., (June 1).

8. U.S. Navy Public Works Center, 1992, Personal Communication from Ranold Fujioka to Catherine Courtney of PRC Environmental Management, Inc., (June 3).

9. Ecology and Environment, Inc., 1982, Field Investigations of Uncontrolled Hazardous Waste Sites, Field Investigation Team Project, EPA Contract No. 68-01-6056, EPA Report Nos. TSC 14-2(82)44, 45, 48, 49, 50, 51, 53, 54.

10. Ecology and Environment, Inc., 1982, Field Investigations of Uncontrolled Hazardous Waste Sites, Field Investigation Team Project, EPA Contract No. 68-01-6056, Sample Documentation Report.

11. Ecology and Environment, Inc., 1982, Field Investigations of Uncontrolled Hazardous Waste Sites, Coral Sea Road Coral Pit, Field Investigation Team Project, EPA Contract No. 68-01-6056, EPA Report No. TSC 14-2(82)50.

12. Ecology and Environment, Inc., 1982, Field Investigations of Uncontrolled Hazardous Waste Sites, Field Investigation Team Project, EPA Contract No. 68-01-6056, EPA Report No. TSC 14-2(82)49.

13. Ecology and Environment, Inc., 1982, Field Investigations of Uncontrolled Hazardous Waste Sites, Field Investigation Team Project, EPA Contract No. 68-01-6056, EPA Report No. TSC 14-2(82)51.

14. Aqua Terra Technologies, Inc., 1988, Verification Phase Confirmation Study, Sites 1, 2, 3 - NAS Barbers Point, Coral Sea Road Coral Pit, Ordy Pond, and Sanitary Landfill, Pearl Harbor Naval Base Oahu, Hawaii. Prepared for the Department of the Navy, Pacific Division, Naval Facilities Engineering Command, Pearl Harbor, Hawaii.

15. Commander, Naval Base, Pearl Harbor, 1992, Time Line and Fact Sheet on Installation Restoration Sites, Hawaii.

16. U.S. Navy, Pacific Division, 1992, Installation Restoration Program, Personal Communication from Bob Kaito to Warren Hall of PRC Environmental Management, Inc., (May 27).

17. U.S. Department of Energy, Argonne National Laboratory, 1990, Final Sampling Plan, Naval Air Station Barbers Point, Hawaii.

18. Quinlan and Associates, Inc., 1992, Summary of Hydrogeologic Reconnaissance, Ewa Beach, Oahu, Hawaii, Prepared for PRC Environmental Management, Inc.

19. U.S. Navy Public Works Center, 1992, Personal Communication from Dave Sachs to Catherine Courtney of PRC Environmental Management, Inc., (June 4).

20. U.S. Navy Public Works Center, 1992, Personal Communication from Chris Kwock to Catherine Courtney of PRC Environmental Management, Inc., (May 27).

21. Hawaii State Department of Health, 1984, Underground Injection Control Line Map, Ewa Quandrangle.

22. Hawaii State Department of Land and Natural Resources, Personal Communication from Neil Fujii to Catherine Courtney of PRC Environmental Management, Inc., (May 29).

23. Flood Insurance Rate Map, 1990, City and County of Honolulu, Hawaii, Panel 130 of 135, Community Panel No. 150001 0130C.

24. City and County of Honolulu, Board of Water Supply, Personal Communication from Alwyn Morisako to Catherine Courtney of PRC Environmental Management, Inc., (May 22).

25. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, 1992, Personal Communication from Eugene Nitta to Catherine Courtney of PRC Environmental Management, Inc., (May 21).

26. U.S. Navy, Pacific Division, 1992, Personal Communication from Tim Sutterfield to Catherine Courtney of PRC Environmental Management, Inc., (May 23).

27. U.S. Fish and Wildlife, 1992, Personal Communication from Chip Demarest to Catherine Courtney of PRC Environmental Management, Inc., (May 23).

28. U.S. Army Corps of Engineers, personal communication from Mike Lee to Catherine Courtney of PRC Environmental Management, Inc., (June 4).

29. U.S. Environmental Protection Agency, 1992, Graphical Exposure Modeling System (GEMS), on-line, compiled from 1990 U.S. Census Bureau data.

30. Miller, K., B. Hallet, A. Pangelian, D. Sox, and S. Warner, 1991, Endangered Plant Report: *Achyranthes splendens* var. *rotunda*, University of Hawaii, Science 490.

31. Argonne National Laboratory, 1992, Draft Site Inspection Report, Barbers Point Naval Air Station, Barbers Point, Oahu, Hawaii. Volume 1: Main Text. 126 pp.

APPENDIX B

CONTACT LOG

CONTACT LOG

Facility Name: Barbers Point Naval Air Station
EPA ID Numbers: HI1170024326 and HI1170090004

Name	Affiliation	Telephone	Date	Regarding
Eugene Nitta	National Marine Fisheries Service	808-955-8831	5-21-92	Endangered marine species and fisheries
Alwyn Morisako	City Board of Water Supply	808-527-5276	5-22-92	Well location and use data
Chip Demarest	U.S. Fish and Wildlife	808-541-2749	5-23-92	Endangered species, sensitive environments
Tim Sutterfield	U.S. Navy, PACDIV	808-474-5923	5-23-92	Endangered species at Barbers Point NAS
Chris Kwock	U.S. Navy, PWC	808-474-0388	5-27-92	Drinking water well at Barbers Point NAS
Bob Kaito	U.S. Navy, PACDIV	808-474-4504	5-27-92	Argonne National Laboratory Report
Neal Fujii	Hawaii State Department of Land and Natural Resources	808-587-0264	5-29-92	Wellhead protection, floodplain maps, underground injection control line maps
Stan Kato	U.S. Navy, Barbers Point	808-684-8201	6-1-92	Base population, regulatory history site visits
Ranold Fujioka	U.S. Navy, PWC	808-471-0826	6-3-92	Barbers Point NAS Sanitary Landfill
Dave Sacks	U.S. Navy, PWC	808-474-4229	6-4-92	Barbers Point NAS Drinking Water Well
Mike Lee	U.S. Army Corps of Engineers	808-438-9258	6-4-92	Ordy Pond Wetlands

APPENDIX C

CONTACT REPORTS

RECORD OF TELEPHONE CONVERSATION

Date: May 21, 1992	Project Number: 012-C09055362
Name: Catherine Courtney Firm: PRC Environmental Mgt, Inc.	Contact: Eugene Nitta Firm/Agency: National Marine Fisheries Service Street: 2570 Dole St. City: Honolulu State: HI Zip: 96822 Phone: 808-955-8831
Subject: Marine fisheries and endandered species, Barbers Point NAS	

CONVERSATION SUMMARY

Mr. Nitta stated that green sea turtles have been observed feeding on marine algae in the nearshore waters around Barbers Point NAS (BPNAS). Turtles are frequently observed offshore of the Coast Guard Reserve Station on BPNAS. Seasonally, Humpback whales have been observed in low densities offshore of BPNAS, predominantly between December and May. Spinner dolphin are observed on occasion off BPNAS. The Pacific Ocean area around BPNAS serves as an important commercial and recreational fishery for reef fish and pelagic species.

RECORD OF TELEPHONE CONVERSATION

Date: May 22, 1992	Project Number: 012-C09055402
Name: Catherine Courtney Firm: PRC Environmental Mgt, Inc.	Contact: Alwyn Morisako Firm/Agency: Honolulu Board of Water Supply Street: City: State: Zip: Phone: 808-5275276

Subject: Drinking water wells in the vicinity of Barbers Point NAS

CONVERSATION SUMMARY

Drinking water wells are located upgradient from BPNAS. BPNAS recieves its drinking water from a Navy-owned well approximately 2 miles north of the facility. The Honouliuli, Kunia, and Makakilo wells were the only municipal drinking water wells within 4 miles of BPNAS. Maps were reviewed that showed numerous non-potable, primarily irrigation wells that are privately owned by Oahu Sugar Co. An index of all private and municipal wells was used to cross reference the well location and use. A copy of the index and maps showing well locations could be obtained from the state of Hawaii Department of Land and Natural Resources. The Navy-owned well provides non-blended drinking water to BPNAS. Municipal drinking water wells in the vicinity of BPNAS identified by Mr. Morisako are part of a blended system. Mr. Morisako said it was not possible to determine the blending approptionment because water from many wells is blended in a reservoir and the input from any one drinking water well varies daily. Mr. Morisako stated that there were no surface water intakes for drinking water within four miles of BPNAS.

RECORD OF TELEPHONE CONVERSATION

Date: May 23, 1992	Project Number: 012-C09055402
Name: Catherine Courtney Firm: PRC Environmental Mgt, Inc.	Contact: Tim Sutterfield Firm/Agency: Naval Facilities Engineering Command Street: City: State: Zip: Phone: 808-474-5923
Subject: Natural resources and endangered species on Barbers Point NAS	

CONVERSATION SUMMARY

Mr. Sutterfield stated that no reports of endangered bird species at Ordy Pond for the last 6 years. He said that state of Hawaii biologists said the endangered Hawaiian Coot used Ordy Pond in the past. He stated that no endangered plant species have been found at Ordy Pond, Coral Sea Road Coral Pit, and Barbers Point Sanitary Landfill.

RECORD OF TELEPHONE CONVERSATION

Date: May 23, 1992	Project Number: 012-C09055362
Name: Catherine Courtney Firm: PRC Environmental Mgt, Inc.	Contact: Chip Demarest Firm/Agency: U.S. Fish and Wildlife Street: City: State: Zip: Phone: 808-541-2749
Subject: Endangered species, sensitive environments	

CONVERSATION SUMMARY

Mr. Demarest stated that the Pearl Harbor National Wildlife Refuge, located approximately 4 miles northeast of BPNAS is managed specifically for the reproduction of four endangered bird species of birds. Population estimates for these endangered species are: 1,200 Hawaiian Coots; 100 Hawaiian Common Moorehen; 1,300 Hawaiian Stilts; and 300 Hawaiian Ducks. The endangered Hawaiian Monk seal has been reported in the water off leeward Oahu within 15 miles of BPNAS, where they have reportedly pupped on some remote beaches. Endangered species of whales observed in Hawaiian waters include: Blue, Sperm, Right, and Finback whales. Federally listed endangered plants are found on BPNAS. These species include: *Acaranthes splendens* var. *rotundata* and *Chamaesysce skottsbergii* var. *skottsbergii*. Mr. Demarest subsequently sent by mail a recent report on the locations of these plants on BPNAS.

RECORD OF TELEPHONE CONVERSATION

Date: May 27, 1992	Project Number: 012-C09055402
Name: Catherine Courtney Firm: PRC Environmental Mgt, Inc.	Contact: Chris Kwock Firm/Agency: Navy Public Works Center Street: City: State: Zip: Phone: 808-474-0388
Subject: Navy-owned drinking water well	

CONVERSATION SUMMARY

Identified the location of the Navy-owned drinking water well for Barbers Point NAS. Stated that this was the only source of water to BPNAS. Drinking water from this well is in compliance with Safe Drinking Water Act. No contaminants exceeding maximum contaminant levels.

RECORD OF TELEPHONE CONVERSATION

Date: May 27, 1992	Project Number: 012-C09055362
Name: Warren Hall Firm: PRC Environmental Mgt, Inc.	Contact: Bob Kaito Firm/Agency: Navy Engineering Facilities Command, PACDIV Street: City: State: Zip: Phone: 808-474-4504
Subject: Recent assessment of Coral Sea Road Coral Pit	

CONVERSATION SUMMARY

I called to confirm our meeting at 9:30 AM so that I would be allowed to look over the Argonne National Labs assessment report of the Coral Sea Road Coral Pit. Bob stated that the report had not been reviewed by hish office and did not want to release the report to any contractors until he had reviewed it. He also wanted some direct contact from Carolyn Douglas at EPA to authorize the release of the document to PRC. I thanked him and told him that if time permits, a letter from Carolyn Douglas would be forthcoming to authorize release of the report to PRC for review.

RECORD OF TELEPHONE CONVERSATION

Date: May 29, 1992	Project Number: 012-C09055362
Name: Catherine Courtney Firm: PRC Environmental Mgt, Inc.	Contact: Neal Fujii Firm/Agency: Hawaii Dept. Land and Natural Resources Street: City: State: Zip: Phone: 808-587-0264
Subject: Well location maps, floodplain, rainfall	

CONVERSATION SUMMARY

I met with Mr. Neal Fujii at the state of Hawaii Department of Land and Natural Resources. He provided quad maps with all wells identified and an idex listing the well by number, use, yield and other information. Neal stated that Hawaii does not have a Wellhead Protection Areas. He provided a map showing the 2-year 24-hour rainfall for the island of Oahu. The 2-year 24-hour rainfall for the Barbers Point area is 5 inches. He also provided Federal Insurance Rate Maps for the island of Oahu. The coastal area of Barbers Point NAS is located in the 100-year floodplain. The floodplain for the remainder of the BPNAS is not determined.

RECORD OF TELEPHONE CONVERSATION

Date: June 2, 1992	Project Number: 012-C09055362
Name: Catherine Courtney Firm: PRC Environmental Mgt, Inc.	Contact: Stan Kato Firm/Agency: Barbers Point NAS Street: City: State: Zip: Phone: 808-684-8201
Subject: Barbers Point NAS	

CONVERSATION SUMMARY

I met with Mr. Stan Kato, environmental engineer for Barbers Point NAS. Mr. Kato and I toured the BPNAS and visited Coral Sea Road Coral Pit, Ordy Pond, and Barbers Point Sanitary Landfill. He stated the that the current base residential population was 2,110 and non-resident worker population ws 3,527. This estimate was made in 1991. He stated that BPNAS did not have any active federal permits. He said that BPNAS used to have a point discharge for effluent to the Pacific Ocean under National Pollutant Elimination System permit No. HI0110043; however, the facilty no longer discharges effluent because it is connected to a municipal sewage system. At the Coral Sea Road Coral Pit he stated that the site was inactive but the waste fuel tanks were still active. Sludge from these tanks was cleaned for the first time on October 7, 1991. This date is labelled on each tank. He stated that PCBs were found in the sludge and that the sludge was disposed of as a hazardous waste. A fence and locked gate restricted access to the pit. There was alot of standing water in the coral pit from the drainage system that discharges rinsewater from a nearby aircraft maintenance facility. Mr. Kato stated that Ordy Pond was inactive. We walked through dense vegetation to reach the pond. Abundant aquatic life was observed in the pond. Mr. Kato stated that in the past, Ordy Pond used to be used for recreational fishing and the base commander would stock the pond with fish. Mangrove and other wetland vegetation was observed encircling the pond. Metal debris was observed sticking out of the water. The water in the pond was a reddish-brown color, which is probably biological (diatoms) in nature. Ordy pond is off-limits to base personnel. The stormwater system on BPNAS consists of dry wells. Mr. Kato said that the frequent back-up of these drywells causes damage to the road system. We drove to the Barbers Point Landfill which has restricted access by gate and fence. PWC and the Army are using the landfill to dry sewage sludge. Asbestos is in the landfill covered with dirt, asbestos no longer disposed of in the landfill since 1991. Bioremediation project consists of oily waste landfarm.

RECORD OF TELEPHONE CONVERSATION

Date: June 3, 1992	Project Number: 012-C09055362
Name: Catherine Courtney Firm: PRC Environmental Mgt, Inc.	Contact: Ranold Fujioka Firm/Agency: Navy Public Works Center Street: City: State: Zip: Phone: 808-471-0826
Subject: Barbers Point Sanitary Landfill	

CONVERSATION SUMMARY

I spoke with Mr. Fujioka about the regulatory history and current use of the Barbers Point Sanitary Landfill. Mr. Fujioka said the site is no longer used as a sanitary landfill. Asbestos was disposed of at the landfill until 1992. The landfill has no RCRA permitting history, but currently holds a state of Hawaii Solid Waste Permit No. SW-233240. This permit includes the following uses: asbestos disposal that ceased in 1991; landfarming oily waste from the sewage collection systems; and sewage sludge drying bed.

RECORD OF TELEPHONE CONVERSATION

Date: June 4, 1992	Project Number: 012-C09055362
Name: Catherine Courtney Firm: PRC Environmental Mgt, Inc.	Contact: Dave Sachs Firm/Agency: Navy Public Works Center Street: City: State: Zip: Phone: 808-474-4229
Subject: Navy-owned drinking water well for Barbers Point	

CONVERSATION SUMMARY

Mr. Sachs told me that the Barbers Point drinking water well was located on the Honolulu side of the Old Farrington Highway in a quarry. The bottom of the sump for the well is 4 feet below sea level or about 164 feet below ground surface. He did not known anything about the drinking water quality and suggested talking to Chris Kwock.

RECORD OF TELEPHONE CONVERSATION

Date: June 4, 1992	Project Number: 012-C09055362
Name: Catherine Courtney Firm: PRC Environmental Mgt, Inc.	Contact: Mike Lee Firm/Agency: U.S. Army Corps of Engineers Street: City: Fort Shafter State: HI Zip: Phone: 808-438-9258
Subject: Wetlands around BPNAS	

CONVERSATION SUMMARY

I spoke with Mr. Mike Lee of the U.S. Army Corps of Engineers, Operations Branch. He said that no wetlands delineation maps have been made for Barbers Point NAS. I told him that I had observed mangrove and pickleweed at Ordy Pond. He said he would consider Ordy Pond a wetland environment. He asked if there were any red shrimp in the pond and I said I couldn't observe any. He said there are many sink holes in the general Ewa coastal plain that are sensitive anchaline environments containing these red shrimp.

APPENDIX D

TOPOGRAPHIC MAPS

APPENDIX D

TOPOGRAPHIC MAPS

PARTIALLY SCANNED
OVERSIZE ITEM (S)

See Document # 40704
for partially scanned image(s).

For complete version of oversize document(s),
see paper copy.